

Residential Customers Guide to Insulation and R-value

WHAT DOES IT ALL MEAN?



Have you ever wondered how much insulation you have in your ceilings, walls and floors? Or what R-values you have compared to what is recommended and what it would take to get there? If so, this fact sheet can help you. Use the chart below to calculate your existing R-value by measuring the thickness of the insulation in your ceilings, walls and floors. Then you can calculate how much insulation you need to reach the recommended R-value levels for your home.

R-values per inch by type of insulation

Type of Insulation	Form	Color	R-value per inch
Fiberglass	blown-in	pink or yellow	2.2
Fiberglass	blown-in	white	2.8
Fiberglass	blanket or batt	pink or yellow	3.1
Rockwool	blown-in	dark gray or brown	2.8
Rockwool	blanket or batt	dark gray or brown	3.2
Cellulose	blown-in	dark grey	3.7
Polystyrene	extruded	pink or white	5.0
Polystyrene	molded	pink or white	4.0
Polyurethane	unfaced	beige or white	6.0
Polyurethane	faced	beige or white	7.1
Polyisocyanurate	unfaced	tan or beige	6.0
Polyisocyanurate	faced	tan or beige	7.1
Perlite	loose-fill	white	2.4
Vermiculite	loose-fill	white	2.8

Recommended R-values for existing buildings

- Ceilings – R-49
- Walls – R-19
- Floors – R-25
- Basement walls – R-13

Step 1) What kind of insulation do you have?

Step 2) What form of insulation do you have?

Step 3) Measure how much insulation you have.

Ceilings – measure the depth with a ruler. How deep is it?

Walls – the average home has 3 1/2” of insulation in the walls.

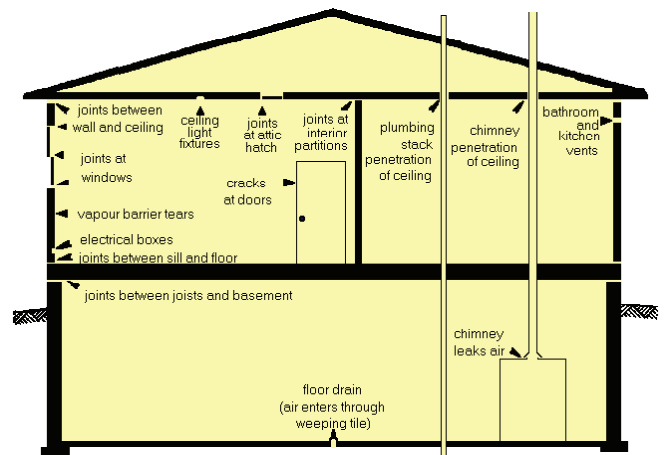
Floors – If you have a basement, measure the depth with a ruler. If you do not have a basement and you have a crawl space, it will be necessary to access the crawl space to measure the insulation. If your home is on a solid foundation, you can assume you have no insulation between the concrete and the ground.

Step 4) Multiply the measured inches times the R-value per inch for the kind of insulation you have. This gives you the R-value you have in the ceiling, walls and floors.

Example: Let's say your ceiling has 6 inches of pink fiberglass batt insulation. The R-value per inch for fiberglass batt insulation in the chart is 3.1 per inch. Now multiply the 6 inches you measured times the 3.1 R-value per inch and it equals an R-value of 18.6.

Step 5) Subtract your R-value of 18.6 from the recommended R-value for ceilings (R-49). The difference (30.4) is the amount of additional R-value you need to equal the recommended value.

Step 6) How much insulation do you need to add? If you need to add an additional R-value of 30.4 and you plan to use the same kind of insulation, then divide 30.4 by the R-value per inch for fiberglass batt insulation (3.1). The calculation indicates that you need to add an additional 9.8 or 10 inches of insulation.



Typical Air Leakage Points

Save Energy, Save Money

- ▶ **Replace incandescent light bulbs with compact fluorescent lamps** that last 10 times longer and consume 75% less energy.
- ▶ **Install a programmable thermostat.** Save up to 30% on your heating bills with an ENERGY STAR® programmable thermostat.
- ▶ **Set your heating thermostat no higher than 68 degrees** when at home and 60 degrees when not at home or sleeping.
- ▶ **Get an annual furnace checkup** and air conditioner check up and check the filter every 30 days and change as necessary.
- ▶ **Weatherize your home.** Earn up to 20% savings on heating bills by caulking and weather-stripping. Earn up to 10% savings on cooling bills by caulking and weather-stripping.
- ▶ **Consider installing more attic insulation.** Achieve up to 20% savings on heating bills by upgrading 3 inches of insulation to 12 inches. Achieve up to 10% savings on cooling bills by upgrading 3 inches of insulation to 12 inches.
- ▶ **Set your water heater no higher than 120 degrees Fahrenheit.**
- ▶ **Clean your refrigerator and freezer coils** once a year.
- ▶ **Use a microwave** to reduce cooking time, reduce your energy bill and avoid adding heat to your house that the air conditioner has to remove.
- ▶ **Use ceiling fans** or portable fans during summer months to increase your comfort at warmer temperatures allowing you to set your air conditioning thermostat to a warmer setting.
- ▶ **Clean the dryer lint filter** after each load.
- ▶ **Use a drying rack** or a clothesline for drying items not needed right away.
- ▶ **Turn off lights** and unnecessary electronics when you are not using them.

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